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### Starch in Tracheal Ducts.

In *Botanische Zeitung*, No. 10, 1887, Joseph Schrenk speaks of the formation of starch in the ducts of *Aristolochia Serpentaria*, L. Alfred Fisher had reported the occurrence of starch in the ducts of *Plantago major*, L., and had left the fact to be explained by future investigation (*Bot. Zeitung*, xliii, p. 89).

J. Schrenk noticed that in the rhizoma of *Aristolochia Serpentaria* the interior of the ducts was frequently crowded with those peculiar intrusions from contiguous parenchyma cells, which are known as tylosis. He found an abundance of starch in the intruding portions of these cells, which would satisfactorily account for the presence of starch in dotted ducts; whether this explanation would hold good in regard to *spiral* ducts, the writer of the article is not prepared to decide, as he is not informed of the occurrence of starch in the tylosis cells inside of such vessels.

In a note to the article, Prof. de Bary refers to his book (*Vergl. Anatomie*, p. 179), from which we learn that Unger (*Sitzungsber. d. Wiener Acad.*, I Abth., 1867) has described tylosis in spiral tracheæ. I seize this opportunity to direct the attention of American students to de Bary's standard work, which, in its English version, opens to us such vast treasures of botanical knowledge.

J. SCHRENK.

### Index to Recent American Botanical Literature.

*Agarics, North American.*—*The Subgenus Amanita.*—A. P. Morgan. (*Journ. Mycol.*, iii., pp. 25-33.)

Twenty eight species are described, none of them new to science. A key to the species is given.

*American Violets.* (*Garden*, xxxi., pp. 168, 169. Plate 584.)

The colors of the plate hardly do justice to the delicacy and brightness of tint of our "Bird-foot Violet," though the writer speaks in highest terms of this and others of our species.

*Baptisia calycosa*, var. *villosa*, n. var. Wm. M. Canby. (*Bot. Gazette*, xii., p. 39.)

This new variety is based on Curtis' No. 699, collected in Wilson County, Florida.

*Botanical Journals.*—C. E. Bessey. (*Amer. Nat.*, xxi., pp. 79-81.)

*Catalogue of the known Plants (Phænogamia and Pteridophyta) of Oregon, Washington and Idaho.*—Thos. Howell. (Pamph., 8vo., pp. 28, Arthur, Oregon, 1887.)

A list of 2,152 species and 227 varieties of plants from the northwestern United States, an increase of about 30 per cent. as compared with Mr. Howell's former catalogue, published in 1881.

*Celery Leaf Blight.* (*Cercospora Apii*, Ives.)—B. T. Galloway. (Bot. Gazette, xii., pp. 66, 67.)

This disease is said to destroy annually about one-half of the celery planted in the vicinity of Columbia, Mo.

*Chippeway Plant Names.* L. H. Bailey, Jr. (Bot. Gazette, xii., pp. 37-39.)

A list of 54 names of plants used by the Chippeway Indians of northern Minnesota.

*Delphinium, an Attempt to distinguish the North American Species of.*—Asa Gray. (Bot. Gazette, xii., pp. 49-54)

A tentative arrangement of the species recognized by the author in the section Delphinastrum; 20 of these are given, with five varieties. *D. Parryi*, *D. Parishii*, *D. hesperium* and *D. Nuttallii* are here first described.

*Diatoms, Raising them in the Laboratory.* Prof. Sam'l Lockwood, Ph.D. (Journ. N. Y. Mic. Soc., pp. 153-166, plates vi. and vii.)

Prof. Lockwood is so well known as a careful and conscientious investigator, that this paper possesses a peculiar value, and will doubtless attract unusual attention. It is certainly one of the most valuable contributions to the life-history of the Diatomaceæ ever published. After a series of well conducted experiments he reaches the following conclusions: That diatoms originate in spores so minute that they easily pass through filter paper; that these spores are probably resting spores, not motile, and may lie dormant in total darkness for as great a period as thirteen to sixteen years; that the viability of some genera is greater than that of others; that, owing to the environment being abnormal, development may be rapid and erratic, and that diatoms have embryonal stages or forms with silicate fronds. C. H. K.

*Equisetum litorale*, Kùhl.—W. H. Beeby. (Journ. Bot., xxv., pp. 65, 66; table 273.) "The most noteworthy features about this plant are the abortive spores and the absence of elaters. It

is best distinguished from *E. palustre* by the much larger central hollow of the stem, and by the more numerous and shallower furrows; from *E. limosum* by the smaller hollow, by the furrows being deeper and fewer, by its paler color, and conspicuously by the funnel-shaped uppermost sheaths."

*Fissidens*.—*A Revision of the North American Species of*.—C. R. Barnes. (Bot. Gaz., xii., pp. 1-8, and 25-32 Reprinted.)

This embodies the results of a winter's work at Cambridge with the Sullivant collection and library, and speaks well for the author's critical discrimination and judgment. He also used the material accumulated by the late Mr. Austin, though no mention of this is made in the paper. It reduces the number of species from 24 in Lesq. & James Manual to 20, by combining those too closely allied and discarding doubtful species, and gives clear descriptions and diagnostic characters for those accepted.

*Flora near Santa Barbara, Cal.*—Mrs. R. F. Bingham. (Bot. Gaz. xii., pp. 33-35.)

*Florida Fungi*.—*Notes on*.—No. 11.—W. W. Calkins. (Journ. Mycol., iii., pp. 33, 34.)

A list of 20 species and varieties of *Polyporus*, collected near Jacksonville.

*Florida's new Palm*—*Chamæphoenix Sargentii*.

In the Florida Farmer and Fruit Grower, of Feb. 23, 1887, is an interesting account of this new tree, from the pen of Mr. A. H. Curtiss.

*Heuchera and Mitella*.—*Astringent Qualities of*.—F. W. Anderson. (Bot. Gaz., xii., pp. 65, 66.)

*History of Garden Vegetables*.—E. Lewis Sturtevant. (Amer. Nat., xxi., pp. 49-59.)

Interesting notes are given on the African Valerian (*Valeriana Cornucopiæ*, L.), native to the Mediterranean Region, and furnishing an excellent salad; Alexanders (*Smyrniolum olusatrum*, L.); Alkekengi (seven species of *Physalis*); *Barbarea præcox*, R. Br., known as American cress, though a native of the Old World; Angelica (*Angelica Archangelica*, L.), and Anise (*Pimpinella Anisum*, L.)

*Lewisia rediviva*. (Garden, xxxi., p. 124, plate 582.)

A most delicately colored plate is given of this Western plant.

*Lobelia* —C. G. Lloyd. (Drugs and Medicines of N. A., ii., pp. 67-98, continued.)

A continuation of the description of the structure and medicinal properties of *L. inflata*, and a beginning of that of *L. syphilitica* is made in this number.

*Maple Leaf Scale.* (*Rhytisma acerrinum*).—Samuel Lockwood. (Journ. N. Y. Micros. Soc., ii., pp. 142-144.)

This fungus is described as very destructive to the Maples at Freehold, N. J.

*Nuclei.—Fixing and staining.*—D. H. Campbell. (Bot. Gaz., xii., p. 40.)

The nuclei experimented on were those of the mother-cells of the spermatozoids of various ferns. They were fixed by 1 per cent. solutions of chromic acid, or by concentrated solutions of picric acid or by corrosive sublimate. Staining was accomplished with hæmatoxylin and gold chloride.

*Papaver.—An American.*—Mrs. R. F. Bingham. (Bot. Gaz., xii., p. 67.)

The first indigenous species of this genus was discovered by Mr. John Spence in the high mountains of Santa Barbara County, Cal., and been named *P. Californica* by Dr. Gray.

*Physiological Botany* is the title of the latest of D. Appleton & Co.'s Science Text-books. The volume is an abridgment by Miss E. A. Youmans of Robert Bentley's "Guide to Structural, Morphological and Physiological Botany," in order to make it conform to the rest of the series and supplement the volume, "Descriptive Botany," by Miss Youmans. The illustrations used are the same as those of the original, and were purchased from the author. These are not of uniform excellence, some being very diagrammatic, especially those illustrating the forms of cells, figs. 22-38. After taking a general view of the vegetable world, three chapters (191 pp.) are devoted to the tissues and organs of the Phanerogamia and Cryptogamia, the remaining 88 to the Physiology of Plants. The style is clear and simple, and the typographical work good, so that this will prove a valuable work in those cases where Gray's Series are too difficult and too expensive for class use.

*Pinus rigida* and *P. Lambertiana* (Garden, xxxi., pp. 128, 152, 156, with figures.)

These may be found in a series of articles on trees and shrubs which are being published by this journal, and will be of much interest and value.

*Plants found growing in Meriden, Conn., since issue of Catalogue in 1885.*—Mrs. E. B. Kendrick. (Trans. Meriden Sci. Assoc., ii., pp. 54-57.)

Forty-one additional species and varieties are enumerated.

*Pollen Tubes of Lobelia.*—B. D. Halsted. (Amer. Nat., xxi., pp. 75, 76; ten figures.)

Prof. Halsted found that in all the opened flowers of *Lobelia cardinalis* the pollen within the tube formed by the adnation of the anthers was germinating. The nuclei of the grains was well distinguished by treatment with acid azo-rubin. In the unopened flowers examined, none of the pollen had germinated.

*Quercus palustris.* (Garden, xxxi., p. 217; 3 figs.)

*Schwendener Theory of the Constitution of Lichens.—On the.*—F. LeRoy Sargent. (Amer. Month. Micros. Journ., viii., pp. 21-25.)

*Staten Island Trees.—On the average size and probable Age of.*—Arthur Hollick. (Proc. Nat. Sci. Assoc., Staten Island, Feb. 12, 1887.)

A list is given of a number of the larger native trees of Staten Island, with measurements, and their probable ages estimated from observations by the author on felled individuals and from notes on the same subject published by N. L. Britton in the BULLETIN in May, 1879.

*Strasburger's Laboratory.*—Douglas H. Campbell. (Bot. Gaz., xii., pp. 35-37.)

*Tennessee Flora, with special reference to the Flora of Nashville.* August Gattinger. (Pamphlet, 8vo, pp. 109; Nashville, 1887.)

A list of 1,606 species and 102 varieties found by Dr. Gattinger or reported on good authority from the State of Tennessee. Of these, 1,251 have been found within a circle of thirty miles radius from Nashville as a centre. An interesting feature of the work is the comparative tables of plants from calcareous and from silicious soils. There are interesting notes on the three

species of *Leavenworthia*, and a description of *Hypericum lobocarpum*, Gattinger; Koehne's arrangement of the Lythraceæ is adopted, a var. *pygmæus* of *Cyperus strigosus* and three varieties of *Panicum capillare*, L., are described, and numerous suggestive notes are scattered through the catalogue.

*Tree Trunk and its Branches*.—B. F. Hoyt. (Amer. Nat., xxi., pp. 76, 77.)

From four hundred measurements of trunks and of branches just above the crotch, Mr. Hoyt reaches the interesting conclusion that the limbs just above the point of branching contain 11 per cent. more wood than the trunk just below this point. But as the strength is as the cubes of the circumferences, the trunk is stronger than the sum of the limbs by about 13 per cent.

*Uncinula flexuosa*, Peck, on *Leaves of the Horse-chestnut*.—J. L. Zabriskie. (Journ. N. Y. Micros. Soc., ii., pp. 144, 145.)

*Vermicularia phlogina*, n. sp. Charles E. Fairman. Bot. Gazette, xii., p. 67.)

*West Coast Botany*.—*Analytical Key to*. Volney Rattan. (Pamphlet, small 8vo., pp. 128, San Francisco, 1887.)

This work is announced as "preliminary to a West Coast Botany for beginners, which will probably be completed within three years." Concise descriptions of the Polypetalæ except Umbelliferæ, the Gamopetalæ except Compositæ, and the monocotyledonous orders Alismaceæ, Orchidaceæ, Iridaceæ and Liliaceæ. No Apetalæ are given. In his proposed West Coast Botany the author intends to "include some of the Apetalæ and perhaps a tribe of Compositæ." Why not include them all? Our experience with the several incomplete floras of this kind has been far from satisfactory. The amateur finding a common plant, and not being able to identify it by means of his book, is very likely to be discouraged, while the work itself falls into discredit. The area of territory covered by Mr. Rattan's Key is west of the Sierra Nevada and Cascade Mountains, and from San Diego to Puget Sound.

*Wild Spring Flowers under Cultivation*.. Ernest Volk. (Journ. Trenton Nat. Hist. Soc., i., pp. 46-52.)

*Wilmington Flora*.—*A List of Plants growing about Wilmington, North Carolina, with Dates of Flowering*. Thomas F.

Wood and Gerald McCarthy. (Journ. Elisha Mitchell Sci. Soc., 1885-'86, pp. 77-141. Also reprinted, pp. 69, Raleigh, 1887.)

A neatly printed catalogue of 1,168 species and 34 varieties of Phanerogamia and Pteridophyta growing in New Hanover Co., N. C. 1,046 species are regarded as indigenous. A map of the county accompanies the paper.

*Woodsia obtusa* and *Viola palmata* — *Varities of*. Willard A. Stowell. (Journ. Trenton Nat. Hist. Soc., i., pp. 23-26.)

*Woodsia obtusa*, Torr., var. *Darlingtonii*, is the name proposed by Mr. Stowell for a large form of this fern, the frond nearly tripinnate, the pinnæ distant, lanceolate and acute, the rhachis scarcely or not at all winged, and the sori larger than in the type, from the mountains of Bergen County, near Darlington, N. J.

Variety *variegata* of *Viola palmata*, L., is described with the following characters: "Pubescent; leaves dark green, purplish beneath, reniform cordate to cordate, coarsely crenate; petals curiously streaked and mottled with white and purple; lateral petals densely bearded." Habitat, dry woods, Somerset Co., N. J.

### Botanical Notes.

*Pittonia*.\* The first number of *Pittonia*, to be indexed hereafter, will not fail to excite the liveliest interest in botanical circles. It comes to us without any prospectus, editorial, or introduction of any kind beyond its titular announcement that it is "a series of botanical papers." But it is something more than a series of papers by one of the most accurate of American scholars, it is an appeal by a man who, finding certain of the results of his studies at variance with those of the recognized authorities, calls for a public judgment upon them. It is to be hoped that we shall not follow our usual custom of deciding such questions in the easiest and least responsible way, but will give to this one the attention that its importance demands. As the representative of the leading investigator of our Pacific coast, *Pittonia* must be welcomed by everyone. It brings to us reliable information concerning a class of facts not elsewhere accessible; for the publications of the

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\*PITTONIA. A series of botanical papers by Edward L. Greene, Ass't Professor of Botany in the University of California. No. 1, March, 1887; price, 50 cents.